WHAT IS CLAIMED IS

1. A magnetic head, comprising:

a magneto-resistive film having a ferromagnetic free layer at a top part thereof, said ferromagnetic free layer changing a magnetization thereof in response to an external magnetic field;

first and second magnetic domain control patterns provided on said ferromagnetic free layer, each of said first and second magnetic domain control patterns causing a pinning of magnetization in said ferromagnetic free layer in the vicinity thereof;

a first electrode provided on said ferromagnetic free layer in contact therewith at a region located between said first and second magnetic domain control patterns; and

a second electrode provided in electrical contact with a bottom surface of said magneto-resistive film.

2. A magnetic head as claimed in claim 1, further comprising a first insulating film covering said first magnetic domain control pattern and a second insulating film covering said second magnetic domain control pattern, such that said first insulating film is interposed between said first magnetic domain control pattern and said first electrode and such that said second insulating film is interposed between said second magnetic domain control pattern and said first electrode.

3. A magnetic head as claimed in claim 2, wherein said first and second insulating films have a generally identical thickness.

4. A magnetic head, comprising:

a magneto-resistive film;

a pair of magnetic domain control patterns provided at both lateral sides of said magneto-resistive film, each of said magnetic domain control patterns causing a pinning of magnetization in said magneto-resistive film in the vicinity thereof;

a pair of electrodes provided respectively on said pair of magnetic domain control regions with a mutual separation from each other, each electrode having a tip-end part extending over said magneto-resistive film toward the other electrode,

wherein each tip-end part extends beyond said domain control region, on which said electrode having said tip-end part is provided, with a protruding distance of 0.25 μm or less.

5. A magnetic disk apparatus, comprising:

a rotary magnetic disk; and

a magnetic head scanning over a surface of said magnetic disk,

said magnetic head comprising:

a magneto-resistive film having a ferromagnetic free layer at a top part thereof, said ferromagnetic free layer changing a magnetization thereof in response to an external magnetic field;

first and second magnetic domain control

patterns provided on said ferromagnetic free layer, each of said first and second magnetic domain control patterns causing a pinning of magnetization in said ferromagnetic free layer in the vicinity thereof;

a first electrode provided on said ferromagnetic free layer in contact therewith at a region located between said first and second magnetic domain control patterns; and

a second electrode provided in electrical contact with a bottom surface of said magneto-resistive film.

6. A magnetic disk apparatus, comprising:

a rotary magnetic disk; and

a magnetic head scanning over a surface of said magnetic disk,

said magnetic head comprising:

a magneto-resistive film;

a pair of magnetic domain control patterns provided at both lateral sides of said magneto-resistive film, each of said magnetic domain control patterns causing a pinning of magnetization in said magneto-resistive film in the vicinity thereof;

a pair of electrodes provided respectively on said pair of magnetic domain control regions with a mutual separation from each other, each electrode having a tip-end part extending over said magneto-resistive film toward the other electrode,

wherein each tip-end part extends beyond said domain control region, on which said electrode having said tip-end part is provided, with a protruding distance of 0.25 μm or less.

7. A method of fabricating a magnetic head, comprising the steps of:

forming a magneto-resistive film;

forming a resist film on said magneto-resistive film;

patterning said resist film to form a resist pattern;

conducting a first process while using the resist pattern as a mask;

causing a shrinkage in said resist pattern; and

conducting a second process while using the shrunken resist pattern as a mask.

8. A method of fabricating a magnetic head, comprising the steps of:

forming a magneto-resistive film on a substrate such that said magneto-resistive film includes a ferromagnetic layer on a top part thereof;

depositing a resist film on said magneto-resistive film such that said resist film covers said ferromagnetic layer;

patterning said resist film to form a resist pattern;

depositing a high-coercive magnetic film having a coercive force larger than a coercive force of said ferromagnetic layer in said magneto-resistive film on said magneto-resistive film while using said resist pattern as a mask, to form a pair of high-coercive magnetic regions at both lateral sides of said resist pattern;

causing a shrinkage in said resist pattern to form a shrunken resist pattern;

depositing an insulating film on said

magneto-resistive film such that said insulating film covers said high-coercive magnetic regions and further said shrunken resist pattern;

removing said shrunken resist pattern together with a part of said insulating film covering said shrunken resist pattern so as to expose a part of said magneto-resistive film on which said shrunken resist pattern has been provided; and

depositing an electrode layer on said insulating film such that said electrode layer makes a contact with said exposed part of said magneto-resistive film.

9. A method of fabricating a magnetic head, comprising the steps of:

forming a magneto-resistive film on a substrate;

forming a resist film on said magneto-resistive film;

patterning said resist film to form a resist pattern;

patterning said magneto-resistive film while using said resist pattern as a mask to form a magneto-resistive pattern;

depositing a magnetic film having a coercive force larger than a coercive force of said magneto-resistive film while using said resist pattern as a mask, such that a pair of high-coercive magnetic regions having a large coercive force are formed at both lateral sides of said magneto-resistive pattern from said ferromagnetic film;

causing a shrinkage in said resist pattern;

depositing a conductive layer on said magneto-resistive film while using said shrunken

resist pattern as a mask, such that said electrode layer forms a pair of electrode patterns respectively covering said high-coercive magnetic region.

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